Exercise 87:

### Operating Mechanism of a for...else Loop

1. **For each item in sequence**: The for loop iterates over the elements in a sequence (such as a list, range, or string).
2. **Execute the block of code**: For each item, the code inside the for loop is executed.
3. **Else block**:

If the for loop completes **without encountering a break** (i.e., it goes through all items in the sequence), the else block is executed.

If the loop is **terminated by a break statement**, the else block is skipped.

#### **Key Points:**

* The else block is executed **only if the loop finishes normally** (without a break).
* The else block is useful when searching for something in a sequence, and you want to run some code when the search fails.

### Example of a for...else Loop:

# Example: Searching for a number in a list

numbers = [1, 2, 3, 4, 5]

target = 6

for num in numbers:

if num == target:

print(f"Found {target} in the list.")

break

else:

print(f"{target} not found in the list.")

# Output:

# 6 not found in the list.

### Explanation of the Example:

1. **For loop**: The loop iterates through each number in the numbers list (1, 2, 3, 4, 5).
   * For each number, it checks if the current number (num) is equal to the target (6).
   * If a match is found (i.e., num == target), it prints a message and exits the loop using the break statement.
2. **Else block**:
   * If the for loop completes without finding the target (i.e., no break is triggered), the else block runs, printing "6 not found in the list."
   * In this case, since 6 is not in the list, the loop finishes normally, and the else block is executed.